NOTE XXVII.

ON PHASIANUS IGNITUS AND ITS NEAREST ALLIES

BY

Dr. J. BÜTTIKOFER.

While working out the ornithological results of the Dutch expedition to Central Borneo, I had to decide which name to bestow upon the Bornean Crested Fire-back, generally known as *Euplocamus nobilis* Scl., but afterwards united with *E. ignitus* Lath. by Elliot (Ibis 1878, p. 414), and lately also by Ogilvie Grant in his Catalogue of the Game Birds in the British Museum.

A comparison of the Bornean specimens in the Leyden Museum with our very interesting other representatives of the Genus 1) convinced me that we have to acknowledge not only two, as Elliot (l. c.) proposes, but four well-defined species, as will be fully explained hereafter in the key to the species.

---

1) Mr. Grant has, for reason of priority, substituted the generic name *Euplocamus*, under which the group is generally known, by the older name *Lophura* Fleming. Under the genus *Lophura* Mr. Grant comprises the Fire-backed Pheasants with a black crest on the head, including *L. Diardi* from Siam and Cochin China. For the sake of convenience I propose, however, to restrict the generic name *Lophura* to the crested Fire-backs with blue face and white or fulvous centre tail-feathers. *Lophura Diardi* differs so strikingly from the other Fire-backs, that it had never been mixed up with the synonymy of the latter. It has the naked parts of the head red instead of blue, and the tail of the male is entirely black. Moreover is the modus of coloration of the plumage, in the male as well as in the female, so thoroughly different, that there is more than sufficient reason to separate it generically under the name of *Diardigallus* Bp.

KEY TO THE SPECIES (MALES).

a. Four central tail-feathers fulvous.
  a'. Breast black, only the flanks chestnut, varied with black . . . . *ignita*.
  b'. Breast and flanks uniform chestnut. . . . . . . *nobilis*.
b. Four central tail-feathers white.
  a'. Flanks and more or less also the breast chestnut, varied with black . . . . *sumatrana*.
  b'. Flanks steel-blue or black, with white shaft-streaks . *Vieilloti*.

DOUBTFUL REFERENCES.

Fire-backed Pheasant Lath. Gen. Syn. Suppl. II, p. 274 (1801), Java?1)).
Phasianus rufus (♀) Raffles, Trans. Linn. Soc. XIII, p. 321 (1822), Sumatra2)).
Sumatran Pheasant Lath. Gen. Hist. VIII, p. 204 (1823), Sumatra3)).
Phasianus ignitus Gray in Griffith' ed. Cuv. III, p. 30 (1829), Sunda Isl.4)).
Phasianus rufus » » . » » » » » 28 » Loc.?5)).
Houppifer ignitus Guérin Méneville, Icon. Règ. Anim. Ois. pl. 43, f. 3 (1829—38)6)).
Euplocamus ignitus Gray, List Spec. Birds Br. Mus. III, Gallinae, p. 26, with the exception of specimen *a*, which belongs to *L. sumatrana* (1844).

1. *Lophura ignita*.

The Fire-backed Pheasant Staunton, in Macartney's Embassy to China, I, p. 79, pl. XIII (1797).

---

1) In this description mention is made of the red flanks, but nothing is said of the central tail-feathers. It is probably based upon that given by Shaw and Nodder in Nat. Misc., and in this case it would be *Ph. ignitus*.

2) A doubtful synonym, based upon the hen of either *L. Vieilloti* or *L. sumatrana*.

3) See the preceding note.

4) Sides spotted, color of central tail-feathers not stated.

5) Description based upon a female.

6) Fig. 3 on pl. 43 represents only the head of a *Lophura*, but as the heads do not possess any distinctive character in this genus, it is impossible to say which species is represented by the figure. In the letterpress, p. 26, nothing is said of the mentioned figure of the head, but fig. 2 of the same plate represents a bird which is wrongly called *Houppifer Diardi*, and which the author suggests to be the young of *Houppifer ignitus*, while in reality it represents, together with the accompanying description, the adult male of *Acomus erythrophthalmus*. This is the same mistake which is made by Temminck in Vol. II, p. 279, of his Pigeons et Gallinacés.

Phasianus ignitus Shaw and Nodder, Nat. Misc. IX, pl. 321 (about 1800); Lath. Ind. Orn. Suppl. p. LXI (1801).

Gallus Macartneyi Temm. (part.) Pig. et Gall. II, p. 273 (1813) and III, p. 663 (1815); Steph. in Shaw's Gen. Zool. XI, p. 218 (1819); Schinz (descr., nec tab. 93), Naturg. und Abb. d. Vögel, p. 248 (1833); id. (letterpress, nec tab. 70), Naturgesch. d. Vög. p. 147 (1853).

Lophura ignita Flem. Philos. of Zool. II, p. 230 (1822).

Macartneya Macartneyi Less. Traité d'Orn. p. 493 (1831).

Gallus ignitus Vieill. (part.) Gal. Ois. II, p. 29, nec pl. 207 (1834).

Gallophasis ignitus G. R. Gray, Gen. B. III, p, 498 (1845).

Macartneya ignitus (part.) Reichenb. Synopsis Avium, pl. CCXXXIX, fig. 2029 (1848).

? *Euplocamus sumatranus* (♀) Dubois, Bull. Acad. Belg. (2) XLVII, p. 825 (1879)[1].

Adult male. General color black, the short feathers on head and chin without any gloss; crest, whole neck, mantle, scapulars, upper tail-coverts, throat, chest and upper breast glossy purplish blue, this color covering the exposed terminal part of the feathers, while the hidden basal part is dull black. Lower back and rump glossy fiery bronze; lower breast black, the feathers margined and more or less broadly tipped with steel-green; abdomen, vent, thighs, under wing- and under tail-coverts sooty black with scarcely any metallic gloss; feathers of the flanks black, the exposed parts of them steel-green or steel-blue, which color is, to a greater or lesser extent, substituted by a space of pale rusty yellow. On some feathers this latter color covers the whole terminal part, on others it only forms a more or less broad rhomboid patch, which is flanked or even entirely surrounded by steel-green or steel-blue. On all these feathers the rusty space is lengthened along the shaft towards the base in the form of a wedge. The rusty yellow spaces may not be identified with the rusty shaft-streaks found on the flanks in young specimens of *L. Vieilloti*, as they in reality make the im-

---

1) The black-tailed female here described and said to have been obtained in Sumatra, might possibly belong to the present species.

pression of being the predominant color of the flanks, which is never the case with the narrow shaft-streaks in the latter species.

The wings are sooty black, the outer webs of the primaries earthy brown, the upper wing-coverts broadly tipped with steel-blue with a greenish gloss under a certain light. Tail strongly graduated, the outermost pair being the shortest, the second from the centre the longest. The six outermost pairs are entirely sooty black and straight, the two innermost strongly bent outward, respectively downward, when the tail is laterally compressed as in the genus *Gallus*, and uniform fulvous or havannah-color. Iris red, bill horny white, wattles and bare space covering the whole sides of the head smalt-blue, feet red. Wing 28 cm., outermost tail-feathers 11, innermost 23, tarsus 10,5, culmen 3,5.

Adult female. There is no authentical female known of this species, but it may be expected that the females of both species, in which the centre tail-feathers of the males are fulvous instead of white (*L. ignita* and *L. nobilis*), will be characterized by black tail-feathers. As *L. nobilis* is unknown in Sumatra, we may suppose that Sumatran females with black tail-feathers will belong to this species.

At present I know only three black-tailed female specimens being recorded as obtained in Sumatra, namely the female .described by Dubois under the name of *Euplocamus sumatranus*, in the Museum at Brussels, and two specimens making part of the collections of the Zoological Garden at Amsterdam, kindly lent me, together with all the other *Euplocamus*-specimens in its possession, by the Director, Dr. Kerbert. Unfortunately in none of these three specimens the mentioned habitat may incontestably be depended upon, the first having probably been obtained, as I am informed by Dr. Dubois, from Major Henrici, who has also collected in Borneo, while the two latter have died in the Garden at Amsterdam and are only supposed to have been brought from Sumatra.

The black-tailed female at Brussels is described by Dubois as follows: Lively red, darker on the upper surface than on the lower, upper wing-coverts, secondaries and upper tail-coverts vermiculated with brown; throat whitish, the feathers on neck and upper breast more or less edged laterally with white, the red feathers on the rest of the lower surface entirely margined with white; under tail-coverts black, tipped with brown; tail-feathers black.

According to Dr. Dubois, this bird (the female type of his *Euplocamus sumatranus)* differs from the female of the allied Bornean species, *L. nobilis*, in having the centre of the feathers on breast, abdomen and flanks lively red instead of sooty brown, and in having the brown vermiculations on lower back, and wings less strongly pronounced than in the latter species. In fact one of the two birds in the Amsterdam collection, said to come from Sumatra, fully agrees with that at Brussels, while the other has the feathers on the lower surface black instead of red. This latter specimen differs moreover from all our black-tailed females in having the two innermost pairs of tail-feathers rufous like in the female of *L. Vieilloti*, and the next pair rufous on the inner, black on the outer web, while all the black tail-feathers are very conspicuously tipped with rufous. The feathers on throat and chest are black with white lateral edges and a not very broad chestnut-brown terminal bar, so that throat and chest are making the impression of being black, barred with chestnut, while in all our Bornean specimens the red is the principal color of the chest, the black being reduced to the basal part of the feathers.

As to the red centres on the feathers of breast and flanks, said by Dubois to form the distinguishing character by which this species is unvariably known from the black-breasted *L. nobilis*, I cannot consider it as very trustworthy, as the Leyden collection contains a black-tailed female from Borneo in which the sooty black feathers on breast and flanks are very broadly barred across with rufous on their terminal half. Amongst the red-tailed females there is also a rufous-breasted form represented by a specimen in the collection at Amsterdam. I am unable to say whether this red color on breast and flanks means merely an individual variation or a certain stage of development in the plumage of these birds. And if the latter would really be the case, which of both, the red or the black, will represent the fully developed plumage of the adult female?

There are, in reality, not two of the numerous females, even from the same locality, one alike the other, and much more authentical material must be gathered, before we can decisively settle that difficult question.

Habitat. Unknown.

The only specimen of this species, at present known in any Museum, is the above described adult male, which has already made part of Temminck's old private collection before the foundation of the Leyden Museum. It bears, underneath the stand, in Temminck's own hand-writing the name »*Lophophorus Macartneyi*, Chine". There can be little doubt that this specimen is the type of Temminck's description of the adult male of his *Houppifer* (*Gallus*) *Macartneyi* in Pig. et Gall. II, pp. 275—277. Taking in consideration the abnormal shape of its extraordinarily large and blunt spurs, it must have been kept in captivity, and this having also been the case with Macartney's bird, which, as we learn from Staunton, has been brought from Batavia to England and examined by Shaw, I thought a moment that our bird might be the type of Staunton's and Shaw's, and also of Latham's (Suppl. Ind. Orn.). Macartney's bird, however, had a mutilated tail, while our specimen has not, consequently this latter must have another origin.

Another specimen very likely belonging to this species, is a live male in the Zoological Garden at Amsterdam. It has the breast black and the flanks chestnut-brown like in *L. sumatrana*, thus somewhat darker than in our above described *L. ignita*. The central tail-feathers are of a somewhat paler fulvous than in our bird. It is not known where the bird has been brought from.

2. *Lophura nobilis.*

Euplocamus ignitus S. Müll., Verh. Land- en Volkenk. p. 376 (1839—44); Low, Sarawak, p. 411 (1848); Elliot, Ibis 1878, p. 414 (conclusion); Sharpe, Ibis 1879, p. 270; Pelz. (part.) Verh. Z. B. Ges. Wien, XXIV, p. 531 (1880); Sharpe, P. Z. S. 1881, p. 800; Nicholson, Ibis 1883, p. 90; Elliot, Auk, VIII, p. 15 (1891); Hose, Ibis 1893, p. 422.

Euplocamus nobilis Sclat., P. Z. S. 1863, p. 119, pl. XVI; id. List of Phas. p. 7 (1863); Gray, List of Gallinae Br. Mus. p. 35 (1867); Sclat. P. Z. S. 1868, p. 261; Gray, Hand-List B. II, p. 259 (1870); Elliot, P. Z. S. 1871, p. 138; Elliot, Phas. pl. XXVII (1872); Wald. Ibis 1872, p. 382; Salvad. Ucc. Born. p. 306 (1874); Sclat. P. Z. S. 1875, p. 380; Sharpe, Ibis 1879, p. 234; Sclat. Ibis 1880, p. 371; Guillemard, P. Z. S. 1885, p. 416; Everett, List of Birds Born. p. 199 (1889); Sclat. Ibis 1894, p. 310; Remy Saint-Loup, Ois. des Parcs, p. 313, f. 41 (1896).

Lophura ignita Grant, Cat. B. Br. Mus. XXII, p. 288 (1893); Sharpe, Ibis 1894, p. 544.

Adult male. Similar in size and color to the preceding species, with the following exceptions: The metallic color on the lower back and rump constantly and very strikingly darker, rather dark coppery bronze; a very broad band, covering the lower breast, upper abdomen and entire flanks, uniform fiery bronze-red, the terminal half of each feather, with few exceptions, being entirely of that color, without any black markings. In most of the specimens the broad cross-band is interrupted from behind by the exposed centre of the belly which is black, but never is the band entirely divided by the latter color. The red color of the cross-band on the breast is much darker and more glossy than the flanks of *L. ignita* and very much like the color of the lower back and rump of the latter species. The color of the centre tail-feathers does not differ from that found in *L. ignita* and is generally more widely distributed, as in some specimens not only the innermost and second, but even the third pair of centre tail-feathers are more or less, or even entirely, rusty fulvous. In one of our specimens from Banka the third pair is entirely rusty fulvous, and also the inner web of the fourth pair. I can hardly believe that this greater extent of the fulvous color is due to the more advanced age of the bird, this specimen having the chin white like the female instead of black and is, therefore, by no means a very old bird. Eye red, naked skin on the sides of head blue, bill horny white, feet red. Wing 26 cm., tail 21—23, tarsus 10—11, culmen 3—3,5.

Adult female. Whole upper surface, throat and chest chestnut, the fore-neck and in some specimens also the hind neck, with white lateral edgings to the feathers. These white edgings are also found on the chest, on which, moreover, some black spots are visible, produced by the sometimes not fully hidden large basal part of the feathers, which is black. Back, rump, upper wing- and tail-coverts like the hind neck and mantle, or even darker, with narrow black vermiculations, which are rather faint on back, scapulars and lesser wing-coverts, but very much stronger on rump and upper tail-coverts. Quills sooty black, the outer webs of the primaries uniform earthy brown, of the secondaries vermiculated with rusty brown; wing from underneath and under wing-coverts slaty gray; tail-feathers black, the two innermost pairs strongly vermiculated with rusty brown. Entire breast, flanks, abdomen and thighs sooty black and broadly margined and tipped with white. In some feathers, especially on the flanks and thighs, the black centres are in a more or less degree vermiculated with brown near the tip. In one of our Bornean specimens these brown vermiculations are very broad and not only found on the feathers of the flanks, but also on the breast. In this specimen the white margins are almost entirely restricted to the lateral edge of the feathers. The lower abdomen in all our female specimens is nearly pure white, the hinder flank-feathers and under tail-coverts are always black with rather broad chestnut-brown terminal edge. The feathers on chin and upper throat are white with more or less large chestnut tips. The eyes and naked parts do not differ from those of the male, with the exception of the feet, which are wax-yellow. Wing 23—25 cm., tail 17, tarsus 8,5, culmen 3—3,5.

Habitat. Borneo (spread over the whole island) and Banka.

In possession of the Leyden Museum are the following specimens.

From Borneo: Adult male, Doeson, Barito River (S. Müller); adult male, Pleyharie, South Borneo (Semmelink 1867); adult male, Borneo (Coll.? 1875); adult male and female, West Borneo (Teysmann 1878); adult female, Mount Kenepai, West-Borneo (Büttikofer 1893).

From Banka: Adult male (Teysmann 1872); adult male and female (Vosmaer 1872). The Banka specimens cannot be distinguished in any respect from those from Borneo.

3. *Lophura sumatrana.*

Fire-backed Pheasant Lath. Gen. Hist. VIII, p. 184 (1823) »Malay coast».

Gallus ignitus (part.) Vieillot, Gal. Ois. II, p. 29, nec pl. 207 (1834) »Sumatra».

Euplocamus ignitus Jard. Nat. Libr., Orn. III, p. 214, ? pls. XIX and XX (1836); G. R. Gray, List of Spec. of Birds, III, p. 26 (1844) (as far as specimen *a* is concerned); Sclater (nec Latham), P. Z. S. 1863, p. 119; id. Ibis 1894, p. 310.

Euplocamus Vieilloti × *nobilis* Elliot, Ibis 1878, p. 411.

Euplocamus sumatranus Dubois, Bull. Ac. Belg. (2) XLVII, p. 825 (1879) 1); von Pelz. Verh. zool. bot. Ges. Wien, XXIX, p. 531 (1880); id. Vorderman, Nat. Tijdschr. Ned. Ind. XLIX, p. 98 (1890).

Lophura sp. Grant, Cat. B. Br. Mus. XXII, p. 289, footnote (1893).

---

1) Dubois has described an adult male and female as belonging to this species, but the female having the tail black and it being not out of doubt that it really has been brought from Sumatra, I consider it, on account of its black tail, as belonging to either *L. ignita* or *L. nobilis* (see the synonymy of *L. ignita*, antea p. 171, and text, p. 173).

Adult male. Similar in color to *L. ignita*, with the exception of the centre tail-feathers, which are pure white with a faint ochrous tinge on the basal part as far as it is hidden by the upper tail-coverts. In one of the two specimens in the Leyden Museum only the innermost pair are pure white, while the second are only white on their inner web; in the other specimen the two innermost pairs are entirely white, as also the inner web of the third pair. The red color of the feathers on the flanks is darker than in *L. ignita*, but a trifle lighter than in *L. nobilis*, and extends more or less over the sides of the breast, but never covers this latter entirely as is the case with *L. nobilis*. Iris red, naked skin on the sides of the head blue, bill horny yellow, feet red. Wing 27,5—28,5 cm.; outermost pair of tail-feathers 14, longest 24,5; tarsus 11; culmen 3,8.

Adult female (after the description of Dr. Vorderman's in Nat. Tijdschr. Ned. Ind. 1890, p. 100). Above reddish brown, uniform on head and neck, vermiculated with black on the rest; feathers on the fore-neck reddish brown, edged on both sides with white, on the chest black, edged with white and narrowly tipped with reddish brown; feathers on breast and flanks black with broad white margins, on the hinder part of the flanks dull black with indistinct brown and white edgings. The predominant color on the abdomen is white, here and there interrupted by fulvous black spots; thighs black with white edgings to the feathers; under tail-coverts black with brown terminal shaft-spots and brown edgings; tail-feathers chestnut-brown with black vermiculations on the central pairs. Iris red, bare space on the sides of the head blue, bill dark, lower mandible light horn-color, feet pale flesh-color. Wing 25,5 cm.; tail 15,7; tarsus 8,2; culmen 3,5.

Habitat. Residency of Palembang, South Eastern Sumatra.

The Leyden Museum is in possession of two fully adult males of this species. One of them is, with regard to its stuffing, of a very early date and bears in Temminck's handwriting the name *Lophophorus Macartneyi*, though no red-flanked bird with white centre tail-feathers is mentioned in his »Pigeons et Gallinacés". There is no locality mentioned for this specimen. The other specimen is very valuable as we know with certainty that it was obtained near Moeara Dua, Komering, Residency of Palembang, by Mr. G. C. van Schuylenburch, Assistant Resident at Komering, who sent the skin to the International Exhibition at Amsterdam in 1883 and afterwards presented it, together with a number of other bird-skins from the same district, to the Leyden Museum.

A third specimen which I am inclined to reckon to this species, especially on account of the ochrous hue on the basal part of the white centre-tail-feathers, is a bird with abnormal plumage, making part of the above mentioned collection of the Zoological Garden at Amsterdam. This bird, a splendid adult male, differs from the normal form in having the feathers on the flanks white instead of red, this latter color being restricted to bronzy red inner edgings on the innermost and ditto tips to the hindmost white flank-feathers. This predominant white color has, in this case, to be considered as albinisme. On the other hand the possibility is not excluded that the bird in question, which had been kept in captivity, might be a hybrid between *L. sumatrana* and *L. Vieilloti.*

The typical male specimen of this species is preserved at the Royal Natural History Museum at Brussels. This bird which I had lately the opportunity to examine, together with the black-tailed specimen described by Dubois as the female of this species (see antea, pp. 171 and 173) is in every respect similar to the two specimens in the Leyden Museum. The rufous color on the flanks is by no means restricted to shaft-streaks, and therefore this species is wrongly ranged in the synonymy of *L. rufa* sive *Vieilloti* by Mr. Grant (Cat. B. Br. Mus. XXII, p. 287, foot-note). The ochrous hue on the hidden basal portion of the white tail-feathers is strongly developed, and therefore Dr. Dubois suggests that this is the original color of the centre tail-feathers, and that the white of the exposed parts is the result of the bleaching influence of the light. This is the reason why Dr. Dubois has used the expression: »Queue noire, les quatre rectrices médianes d'un blanc roussâtre, la barbe interne de la paire suivante également d'un blanc roussâtre" (Bull. Ac. Belg. (2) XLVII, p. 825).

Another specimen, fully agreeing with the type and our two Leyden specimens, is preserved in the Imperial Zoological Museum at Vienna. It was obtained in exchange from the Leyden Museum and is said to be brought from Sumatra (see von Pelzeln, Verh. 1880, p. 531). At last there must be put in remembrance, as undoubtedly belonging to this species, the specimen in the British Museum, mentioned by Mr. Grant in Cat. XXII, p. 289, foot-note, under the name *Lophura sp.*, with the following short but quite sufficient description: »Resembles the male of *L. ignita* (our *L. nobilis*), but differs in having the feathers down the centre of the lower breast and belly entirely black, those on the sides margined or largely mixed with black, only the central part in some being rufous chestnut, and the central tail-feathers are white." This is the same bird described by Dr. Sclater in P. Z. S. 1863, p. 119, under the name of *Euplocamus ignitus* in the following terms: »Niger, purpureo splendens, dorso imo igneo-ferrugineo, lateribus pallide castaneis, nigro variis: rectr. 4 mediis albis. Hab. probably Sumatra." This specimen is said to be sent by Mr. Reeves from China; it looks as having been kept in captivity.

An ample description of this species (male and female) is published under the name of *Euplocomus sumatranus* by Dr. Vorderman (l. c.), who had received the birds alive from Palembang, the same locality where our specimen presented by Mr. van Schuylenburch had been obtained. The female specimen had the tail red. As we may be sure that male and female obtained at the same place will belong to the same species, the female of *L. sumatrana* has the tail red, and the black-tailed female described by

Dr. Dubois as belonging to his *E. sumatranus* must belong to either *L. nobilis* or *L. ignita*, whenever the female of this latter species might turn out to have a black tail.

The above mentioned live birds had probably been caught in the forest and not bred in a poultry-yard, as the author tells us that at the beginning they were very shy, that the female very soon died and that after a while the male became more tame. We may thus freely reject the supposition that this bird must be considered a hybrid, as Elliot says of Reeves' bird, between *E. ignitus* (sive *nobilis)* and *E. Vieilloti.*

4. *Lophura Vieilloti.*

Gallus Macartneyi (part.) Temm. Pig. et Gall. II, p. 277 (1813)[1]; Schinz, Nat. u. Abb. d. Vög. (nec letterpress on p. 248), pl. 93 (1833); id. Naturg. d. Vög. (nec letterpress on p. 147), pl. 70 (1853).

Phasianus ignitus Raffl. Trans. Linn. Soc. XIII, p. 320 (1822); Vieill. Tabl. Encyclop. Méth., Ois. pl. 237, f. 2 (1823).

Phasianus castaneus Gray in Griffith' ed. Cuv. III, p. 28 (1829)[2].

Gallus ignitus (nec descr.) Vieill. Gal. Ois. pl. 207 (1834).

Euplocamus ignitus J. E. Gray, Illustr. Ind. Zool. II, pl. 39 (1834); Blyth, Cat. Mus. As. Soc. p. 243 (1849); G. R. Gray (part.), Hand-List, II, p. 259 (1870); Elliot (part. synon.) Mon. Phas. II, pl. 26 (1872); Blyth and Wald. Cat. Mamm. a. Birds Burma, p. 149 (1875).

Euplocamus Vieilloti G. R. Gray, List Specim. Birds, III, p. 26 (1844); Gould, B. As. VIII, pl. 15 (1852); Sclat. P. Z. S. 1863, p. 118; Sclat. and Wolf, Zool. Sketches, 2, pl. 36 (1867); Gray, List Gallinae, p. 35 (1867); Schleg. Jaarb. K. Zool. Gen. Nat. Art. Mag. Amsterd. 1869, p. 133 (with plate); G. R. Gray, Hand-List, II, p. 259 (1870); Hume, Str. F. II, p. 481 (1874); id. id. III, p. 324 (1875); Sclat. P. Z. S. 1875, p. 380; Hume, Str. F. V, p. 119 (1877); Hume and Marsh., Game B. Ind. I, p. 213, pl. (1878); Elliot, Ibis 1878, pp. 124 and 414; Hume and Davison, Str. F. VI, p. 438 (1878); Wardlaw Ramsay, P. Z. S. 1880, p.

---

1) Only the bird described as a variety with white-striped flanks and white central tail-feathers.

2) Based upon a female, evidently of *L. Vieilloti*, Penang being stated as its habitat.

15; von Pelz. Verh. zool. bot. Ges. Wien, XXIX, p. 532 (1880); Kelham, Ibis 1881, p. 532; Oates, B. Burmah, II, p. 320 (1883); Müller, J. f. O. 1885, p. 160; Vorderman, Nat. Tijdschr. Ned. Ind. XLIX, p. 101 (1890); Hagen, Tijdschr. Aardrijksk. Genootsch. Amst. 1890, p. 163; Sclat. Ibis 1894, p. 311; Remy St.-Loup, Oiseaux des Parcs, p. 310 (1896).

Gallophasis Vieilloti G. R. Gray, Gen. B. III, p. 498 (1845).

Macartneya Vieilloti Reichenb. Syn. Av. Gallinacea, pl. 239, figs. 2031—33 (1848).

Euplocamus rufus Hume, Str. F. V, p. 121 (1877).

Lophura rufa [1] (part.) Grant, Cat. B. Br. Mus. XXII, p. 286 (1893).

Adult male. Differs from the preceding species in having the flanks glossy blue with pure white shaft-streaks, very strongly contrasting with the glossy blue lower surface. The two innermost pairs of tail-feathers are pure white with the exception of the extreme base which is black; on the next pair the inner web only is white, or white with black markings. Iris red, bare space of the face blue, feet red, especially the front of the tarsi. Wing 27—28 cm., shortest (outermost) tail-feathers 13, longest 26; tarsus 10—11; culmen 4.

Immature male. A very interesting stage of plumage is represented by a specimen making part of the collection in the Zoological Garden at Amsterdam. The general color of this bird is black, but the feathers on crest, neck, mantle, upper back, scapulars, lesser wing-coverts, throat, chest and partly also of the flanks have already assumed the steel-blue gloss of the adult stage. On the lower back and rump many of the feathers show the full color of the adult, being black at the base and broadly tipped with

---

1) I cannot agree with Mr. Grant in adopting, on account of its priority, this name for the present species. The name *Phasianus rufus* is bestowed by Raffles upon a female, obtained by his collectors »in the Island of Sumatra and its vicinity". The same collectors also obtained an incontestable male of *L. Vieilloti* which is described by Raffles under the name of *Phasianus ignitus*, and therefrom we might conclude that both birds must belong to one and the same species. There is, however, no absolute certainty that both specimens have been found together in the same locality, and the descriptions of Raffles' suiting *L. sumatrana* ♀ of Vorderman's as well, I placed it under the doubtful references.

bronze-brown, while others are black at the base and rufous with brown vermiculations on the terminal half, upon which the bronzy gloss begins to make its appearance. The same change of color without moulting can be observed on the upper tail-coverts, which at first are becoming entirely black and afterwards glossy steel-blue at the tips. Most of the quills have already assumed the black color of the adult stage, while others are brown with black vermiculations like in the female, a few others are in a transitional stage, having partially assumed the black color of the adult. The innermost pair of tail-feathers are pure white with black shafts, the next pair like the innermost, but narrowly fringed on both webs with black on the basal half; of the third pair only the inner web is white with black edging, while the outer web is black like the rest of the tail-feathers and has a rufous tip. The lower surface is black. The white edgings to the feathers, very broad in the female and young male, are in our specimen reduced to very narrow fringes or have entirely disappeared and are substituted by the steel-blue gloss of the adult male. Some of the feathers on the flanks are already more or less broadly tipped with steel-blue and show narrow white shaft-stripes which are varied with rufous. The under tail-coverts are uniform dull black without any glossy blue tips, which latter are very conspicuous in the fully adult bird. The spur is but feebly developed.

Another immature male in a similar but somewhat more advanced stage of plumage, belongs to the collections of the Leyden Museum. It has the white shaft-stripes on the flanks more developed, but still slightly tinged with rufous.

Adult female. I am unable to find any essential difference between the females of this and the preceding species. Both have the tail-feathers uniform rusty brown with sooty black vermiculations on the two central pairs, and the hind part of the upper surface is paler than the mantle and strongly vermiculated with sooty brown.

Our Museum collections contain three red-tailed females which belong to this or eventually to the preceding species. One of them, said to come from British India, has chin and upper throat rusty fulvous and the feathers on fore- and hind neck and on the mantle edged on both sides with white. The feathers on the lower surface are extremely broadly margined with white, giving this part an obviously white appearance. In fact the central spots are so small and almost reduced to broad shaft-streaks on breast and flanks, that the white color is much predominant. In a specimen from Sumatra, also making part of the Leyden Museum, the chin and upper throat are pale rufous and the breast and flanks sooty brown with broad white edgings; only few white stripes are seen on the mantle.

Another specimen with a red tail has chin and upper throat rusty white and the centres to the feathers on breast and flanks black; very few white stripes are seen on the mantle. This bird is labelled »S. Müller, Borneo", but though the British Museum is also in possession of a red-tailed female said to be from Borneo, the statement of this locality might possibly be erroneous, and the bird in question will belong to either *L. sumatrana* or *Vieilloti.*

Moreover I have before me two red-tailed females which had been kept alive in the Zoological Garden at Amsterdam and of which the place of origin is unknown. Both have chin and upper throat pure white and the hind neck and mantle uniform chestnut-brown. In one of these two specimens the feathers on the whole lower surface, with the exception of the pure white abdomen and vent, are chestnut-brown without any blackish spots, and broadly edged in the usual way with white, with the exception of the under tail-coverts which are uniform chestnut-brown. The other specimen is like the former but has the centres of the feathers on breast and hind flanks tinged with sooty brown.

Amongst the five red-tailed females before me, there is not one like the other, but I am entirely at a loss whether to declare these differences to be individual or geographical, or due to the age of the birds.

Habitat. This species seems to be the only representative of the genus on the continent, where it is found in Siam, Tenasserim and the whole Malay Peninsula with the inclusion of Salanga and Penang. Moreover it is found in Western and Northern Sumatra (Carl Bock, Highlands of Padang, and Dr. Hagen, Deli).

The following specimens of this species are making part of the collection in the Leyden Museum: An adult male from Tenasserim, of a very early date; an adult male having been kept in captivity and after its death presented to the Museum by Mr. J. N. Blaauw at Ryswyk (Holland) in 1885; a younger male, having not quite assumed the plumage of the adult, Sumatra, 1858; a female from the continent; another female, probably also belonging to the present species, Sumatra, 1858. Moreover I have had the good fortune of comparing two adult males, an immature male, above described, and two females, all said to come from Tenasserim, which five specimens are making part of the bird-collection at the Zoological Garden at Amsterdam.

CRITICAL REMARKS ABOUT THE LITERATURE HITHERTO PUBLISHED ON THIS SUBJECT.

As we learn from the much entangled synonymy of the different species, the literature of this genus has quite a history, and it is not without interest to trace it by a short review of the more important publications upon this subject [1]), the more as this review will explain how I arrived at the standpoint of acknowledging four different species instead of only two (Elliot and Grant) or three (Sclater).

The first species of this genus was published by Sir George Staunton in Macartney's »Embassy to China", under the name of *Fire-backed Pheasant*. The bird in question,

---

1) Unfortunately the literature on this subject is rather incompletely represented in our Dutch libraries and I am, therefore, much indepted to Dr. P. L. Sclater, Dr. R. Bowdler Sharpe and Prof. Th. Studer for kindly furnishing me with extracts from publications which I was unable to consult myself.

a specimen with a mutilated tail, had been presented to Lord Macartney, the British Embassador in China, during his visit to Batavia. Unfortunately we do not learn where this bird, which had been kept in a menagery at Batavia, had come from, and it is far from probable that Java should be the habitat of this species.

As I was not able to consult Staunton's work myself, Dr. Sharpe kindly furnished me with a copy of the original description, which begins as follows:... »The Embassador's host had a very curious collection in the several departments of Natural History. He made presents to his guests of several specimens. Among them was a beautiful pheasant, which on being sent to England and shewn to a gentleman of acknowledged eminence in all branches of zoology, Doctor Shaw of the British Museum. He was of opinion that this superb pheasant was a bird which, from every examination of the writers on ornithological subjects, appeared yet undescribed." After a long and somewhat confuse description, from which we learn that the specimen had a very mutilated tail, its essential characters are resumed as follows: »It may be called the fire-backed pheasant, and its essential characters may be delineated in the following terms: black pheasant with a steel-blue gloss: the sides of the body rufous: the lower part of the back fiery ferruginous, the tail rounded; the two middle feathers: pale yellow brown."

From this we may conclude that the bird in question with fulvous central tail-feathers had only the flanks red and therefore cannot be identified with the red-breasted *L. nobilis.*

A few years afterwards, about 1800, Shaw and Nodder, in Nat. Misc. pl. 321, unquestionably described the same specimen under the name of *Phasianus ignitus.* They describe »the sides of the body rufous, the two middle tail-feathers yellowish brown". On the plate the central tail-feathers are represented as cinnamon or pale chestnut.

The same bird again is, under the name of *Fire-backed Pheasant*, the subject of a description in Latham's General Synopsis of Birds, Suppl. II, p. 274 (1802), but here are only the flanks stated to be red, and nothing is said about the color of the tail, which was, as Latham says, »mutilated, so as to make it impossible to ascertain of what length it had been originally."

Somewhat later, in his Supplementum Indicis Ornithologici, p. LXI[1]), the same author described the bird under the name of *Phasianus ignitus* as follows: »Ph. niger, chalybeo nitens, lateribus corporis rufis, dorso imo igneo-ferrugineo, rectricibus intermediis subfulvis. Hab. in Java?"

In his Histoire naturelle des Pigeons et des Gallinacés, Vol. II, p. 273 (1813), Temminck described this species under the name of *Gallus Macartneyi*. The essential part of the description of the adult male is contained in the following words:.... »la poitrine et le ventre sont d'un noir à reflets violets, les plumes des flancs ont leurs extrémités d'un roux très brillant, ... les quatre pennes implantées au centre de la queue forment l'arcboutant, elles sont d'un roux clair."

Later on, p. 277, Temminck describes as a variety of this species a bird with »tout le plumage d'une teinte plus violacée, les plumes des flancs terminées de blanc et les quatre pennes du milieu de la queue d'un blanc pur." This »variety" can only be relative to *Lophura Vieilloti*, and the »female", the description of which immediately follows on p. 278, is not the female of *L. ignita* sive *Macartneyi*, but very likely that of either *L. Vieilloti* or *L. sumatrana*. The bird, described on p. 279 as the young male of *Gallus Macartneyi*, with

---

1) This supplement bears the date of 1801, but as the author quoted here the article in App. II of his General Synopsis, which is dated 1802, the „Supplementum" must have been published afterwards.

»toutes les pennes de la queue rousses", is *Acomus erythrophthalmus*, while the birds, described on p. 280 as »des oiseaux jeunes prenant la livrée des adultes", with the tail-feathers »à moitié rousses et moitié noires", belong to *Acomus pyronotus.*

This mixing up of *G. Macartneyi* (*L. ignita*) with other species of the genus and even with the allied genus *Acomus* is the reason why Temminck could speak of having successively received more than twenty specimens of this species, while only a single specimen is at present found in the Leyden Museum.

The article on *Gallus Macartneyi* in Shaw, Gen. Zool. XI, p. 218 (1819), is a mere resumption of Temminck's above mentioned description with the inclusion of all its mistakes.

In 1822, Fleming, Philos. of Zool. II, p. 230, described the same bird as *Lophura ignita*, and as the genus *Lophura* is to be kept separate from *Gallus* as well as from *Phasianus*, this name as being the oldest must be accepted.

Latham, in his Gen. Hist. VIII, p. 184 (1823), describes his Fire-backed Pheasant as having the upper part of the belly ferruginous, varying into deep orange and »the four middle tail-feathers white". He adds: »there are two sickle-shaped ones, fourteen inches in length; these are white, with the ends black." Although this diagnosis is not quite correct, there can be no doubt about this bird being our *L. sumatrana*, which is here for the first time mentioned in literature. The cited habitat »Malay Coast" is evidently erroneous.

In the same work, p. 204, we find a bird described under the name of *Sumatran Pheasant* as having the breast-feathers ferruginous with black bands, and those on the abdomen white and dusky, tail like back, »Sumatra". This bird is a female and belongs, on account of its chestnut brown tail, to either *L. sumatrana* or *Vieilloti.*

I am unable to decide under which species to place *Phasianus rufus*, and *ignitus* Gray in Griffith' ed. Cuv.

III, pp. 28—30 (1829). The first is a female, the second a male; both are very unsufficiently described. *Ph. castaneus* mentioned in the same work, is based upon a female from Penang and therefore belongs to *L. Vieilloti.*

Lesson, in his Traité d'Ornithologie, p. 493 (1831), provided Temminck's *Gallus Macartneyi* (our *L. ignita*) with a new generic name, calling it *Macartneya Macartneyi.*

The description of *Gallus Macartneyi* in Schinz, Nat. Abb. Vög. p. 248 (1833), is a mere translation from Temminck's description of the adult male of his *Gallus Macartneyi* in Pig. et Gall. II, p. 276, and must therefore be referred to *L. ignita,* while on plate 93, belonging to the letterpress, *L. Vieilloti* is represented instead of *L. ignita.*

Vieillot, Gal. Ois. II, p. 29 (1834), furnished us, under the name of *Gallus ignitus,* with a compilation made up after two different descriptions, wherein he described the bird as having the feathers of the flanks »terminées par une teinte orangée très éclatante", and the middle tail-feathers »d'un roux clair ou blanches." I need not say that only the birds with red central tail-feathers, as also his latin diagnosis, can be referred to *L. ignita* and those with white ones belong to *L. sumatrana,* while plate 207 represents *L. Vieilloti.* The mentioned latin diagnosis of the male is copied from Latham's Supplement to the Index Ornithologicus; that of the female, describing the tail as red, must be referred to either *L. Vieilloti* or *sumatrana.*

In Guérin Méneville, Icon. Règ. Anim. Ois. pl. 43, f. 3 (1829—38), the name *Houppifer ignitus* is used, but no description added (vide antea under »doubtful references", p. 170).

In his Genera of Birds, Vol. III, p. 498 (1845), G. R. Gray distinguished two species: *Gallophasis ignitus* of which he considers *Phasianus rufus* Raffles to be the female, and *G. Vieilloti,* which he bases upon plate 207 in Vieillot's Galerie des Oiseaux.

Reichenbach, in his Synopsis Avium, list of the Gallinaceae (1848), also distinguished two species: *Macartneya* *ignitus* and *M. Vieilloti.* The first he based upon Macartney's bird, and added as synonyms *Gallus Macartneyi* Temm., *Phasianus rufus* Raffl. and *Houppifer Diardi.* Two figures, Nos. 2029 and 2030 of plate 239, are added, but none of them is a true representation of any known species. No. 2030 would represent a red-tailed female of *Lophura* were it not for the color of the naked face which is red on the figure instead of blue. The second species, *M. Vieilloti*, really belongs to the species with white inner tail-feathers and white shaft-streaks on the flanks, it is correctly represented by the figures Nos. 2031—33. From this date up to the present day no mention has been made any more of the true *L. ignita*, although its name is wrongly made use of for the three other species at many times and by the most different authors.

In his »List of the specimens of Phasianidae" (P. Z. S. 1863, pp. 118 and 119) Sclater recognized three species as belonging to his section *Euplocamus*: *E. Vieilloti*, *E. ignitus* and *E. nobilis.* The first of these three species, distinguished by the white-striped flanks and the pure white central tail-feathers, has first been mentioned by Temminck in Pig. et Gall. II, p. 277 (1813) as a variety of his *G. Macartneyi* (see antea, p. 187). Under this latter name Schinz has figured the same species on plate 93 of his Nat. u. Abb. der Vög. (1833), and again on plate 70 [1]) of his Naturgesch. der Vög. (1853), but the descriptions on p. 248 of the first, and p. 147 of the second work are mere translations of Temminck's description of the adult male of *G. Macartneyi* and, consequently, must be referred to *L. ignita.*

To *L. Vieilloti* must also be referred the male bird described by Raffles in Trans. Linn. Soc. XIII, p. 320 (1822)

---

1) On both these plates the central tail-feathers are pure white on the inner and salmon-color on the outer webs; this is not correct as Hume stated in a great number of specimens that the middle tail-feathers are always, even in younger males, pure white on both webs.

as *Phasianus ignitus*, while the female, as having no crest, does not belong to the genus at all. Next his *Ph. ignitus*, Raffles, in the same work p. 321, described *Phasianus rufus* as a new species. This is evidently the female of either *L. Vieilloti* or *L. sumatrana*, but being unable to decide to which of both species it belongs, I was obliged to range this name under the doubtful references.

In his Tabl. Encyclop. Méth. Ois. pl. 237 (1823) Vieillot figured *L. Vieilloti* under the name of *Ph. ignitus*, and again in Gal. Ois. pl. 207 (1834) under the name of *Gallus ignitus*, while the description belonging to this latter plate, as already explained (antea p. 189), cannot be referred to *L. Vieilloti.*

J. E. Gray, Ill. Ind. Orn. II, pl. 39 (1844), mentions *L. Vieilloti* under the name of *Euplocamus ignitus.*

His brother, G. R. Gray (List Specimens Birds, III, p. 26, 1844) was the first who separated this species from *L. ignita*, giving it the name *Euplocamus Vieilloti.* Since that time *L. Vieilloti* has, with but few exceptions, generally been considered a distinct species. In his Genera of Birds, III, p. 498 (1845) G. R. Gray mentions it under the generic name *Gallophasis*, Reichenbach (l. c.) as *Macartneya Vieilloti.*

The second species of Sclater's essay is *E. ignitus.* Unfortunately this name is not bestowed upon Macartney's bird, but upon a specimen in the British Museum, received from a Mr. Reeves and said to have been sent from China. This bird, which evidently had been kept in captivity, does not agree with the true *Phasianus ignitus* as described by Staunton, Latham and others, but differs from it in having the middle tail-feathers pure white instead of fulvous and, for this reason, belongs to the species afterwards described by Dubois under the name of *E. sumatranus.* The true *E. ignitus* with chestnut flanks and fulvous central tail-feathers is not mentioned at all by Sclater in his essay.

To the red-flanked species with white central tail-feathers must probably be referred the *Fire-backed Pheasant* in

Latham's Gen. Hist. VIII, p. 184 (1823), where the bird is told to have, as I was kindly informed by Dr. Sclater, »the upper part of belly ferruginous, varying into deep orange, and the four centre tail-feathers white". As already noticed before, Vieillot, in his Galerie des Oiseaux, says in the description the middle tail-feathers to be „d'un roux clair ou blanches"; this latter color would agree with our *L. sumatrana.* The same species again is described by Jardine in Nat. Libr. Orn. III, p. 214, under the name of *E. ignitus*; on the accompanying plate, representing the male, the central tail-feathers are white, but on the flanks neither red feathers nor white shaft-streaks are to be seen. The female is represented on the plate with a red tail and therefore belongs to either *L. Vieilloti* or *L. sumatrana.*

As the third species of *Euplocamus* in his essay Sclater established *E. nobilis.* The plate added to the description fully represents the characters of this new species. *E. nobilis*, the only species found in Borneo, was formerly only mentioned by S. Müller, Verh. Land- en Volkenk. p. 376, and by Low, Sarawak p. 411, under the name of *Euplocamus ignitus.*

Dr. Sclater's view, developed in his essay, was generally adopted during several years, until the publication of Elliot's monograph of the *Phasianidae* (1871). In this monograph Elliot acknowledged only two species of this genus: *E. ignitus* and *E. nobilis.* Under *E. ignitus* are united both *E. ignitus* and *E. Vieilloti*, the first being considered an·immature stage of the latter, and no mention is made of Reeves' bird in the British Museum. Since the issue of this monograph some authors have adopted the view of Elliot's, while others kept sticking to Sclater's idea.

Hume, Stray Feathers 1877, p. 119, in criticising Elliot's view and defending that of Sclater's, clearly shows that *E. ignitus* cannot be identical with *E. Vieilloti* and asks what to make of the bird in the British Museum, described by Sclater as *E. ignitus.*

In his answer upon Hume's remarks, Ibis 1878, p. 124, Elliot declares not to know any bird agreeing with Sclater's description of *E. ignitus* in P. Z. S. 1863; he further suggests that the bird, described by Latham as *Ph. ignitus*, might be identical with *E. nobilis* from Borneo. Later on, in the same volume p. 411, Elliot, who in the meantime had had the opportunity of examining Reeves' bird in the British Museum, points to its difference from Latham's *Ph. ignitus* and considers it a hybrid between *E. nobilis* and *E. Vieilloti*, having the chestnut color on the flanks of the first and the white median rectrices of the latter. This suggestion is supported by the evidence that the bird had been kept in captivity and by the note that it had been received from China. At the end of his remarks, Elliot resumes his altered opinion about the different species in the following terms: „As I formerly suggested might be the case, I now consider *P. ignitus* of Latham the same as *P. nobilis* of Sclater, the latter name becoming a synonym; and the second species, called by me *P. ignitus*, should be known as *P. Vieilloti*; for, judging by the specimen in the British Museum, I fail to perceive any indications that would prove the existence of a third species of this section of the genus *Euplocamus*."

This last view of Elliot's has been adopted by Mr. Grant in Catalogue XXII of the Birds in the British Museum (1893), only has the name *L. Vieilloti* been altered into *L. rufa*, which latter name was already proposed by Hume (Str. Feath. 1877, p. 121) on the ground of its priority[1]). As to Reeves' bird Mr. Grant seems to doubt its hybridity, as he separately describes it in a foot-note on p. 289, suggesting that it possibly might belong to a different species.

In fact Reeves' bird belongs to *L. sumatrana*, created

---

1) I do not think it right to accept this name, which has been bestowed by Raffles (Trans. Linn. Soc. XIII, p. 321) upon a Sumatran red-tailed female, which can belong to *L. Vieilloti* as well as to *L. sumatrana* and therefore must be considered a doubtful synonym.

by Dubois in Bull. Ac. Belg. (2) Vol. 47, p. 825 (1879), who described an adult male from Sumatra, which fully agrees with Reeves' specimen in the British Museum. Another male of this species, obtained from the Leyden Museum, is said by von Pelzeln, Verh. zool. bot. Ges. Wien, XXIX, p. 531 (1880), to make part of the Imp. Mus. at Vienna. In this paper von Pelzeln, in accepting Elliot's opinion, adds as a third species *E. sumatranus* Dubois; Reeves' bird described as a hybrid by Elliot (Ibis 1878, p. 413), is not recognized as *E. sumatranus* but added to the synonymy of *E. ignitus* (in the wider sense with inclusion of *E. nobilis*), while *G. Macartneyi* Temm. is wrongly said to be synonymous with *E. sumatranus.*

Before closing this essay I am sorry to say that our knowledge of this genus is far from sufficient and that many vexing questions are still left undissolved.

With regard to the geographical distribution we find that the only species known from the continent, with the inclusion of the islands of Salanga and Penang, is *L. Vieilloti*, which is also spread over North-eastern and Western Sumatra (see antea p. 185). Opposite the Highlands of Padang, in the Residency of Palembang on the East-coast of the island, it is substituted by *L. sumatrana*, hitherto the only species obtained in that district. From the southernmost part of the island, the Lampongs, no *Lophura* has been stated as yet.

Opposite the coast of Palembang, and only separated from it by a rather narrow channel, lies the Island of Banka which, as we have seen before, is inhabited by *L. nobilis.* As this latter species is the only one found in Borneo, where it is spread over the whole island, and as it is hitherto not found in Billiton, it is a rather strange-looking fact to find it in Banka, which is ornithologically more closely related to Sumatra than it is to Borneo.

Taking into consideration the trading connections between Banka and Palembang the possibility of introducing to

Palembang specimens of *L. nobilis* from Banka on one side and of *L. Vieilloti* from the Highlands of Padang from the other, and of a hybridisation between both species as suggested by Elliot is not excluded, though it is rather improbable.

There was much chance last summer to settle this latter question experimentally in the Zoological Garden at Amsterdam, where a male of *L. Vieilloti* was kept together with a black-tailed hen (thus very likely *L. nobilis*). The result of the interbreeding were a couple of chicks, which unfortunately very soon died from cold. I hope that another time the result of this experiment will be more favorable and throw some light upon this vexing question. If *L. sumatrana* in fact once might turn out to be a hybrid between *L. Vieilloti* and *L. nobilis*, the same possibility might be adopted as well for *L. ignita*, of which we do not know the habitat at all and of which the female and immature stages of plumage are absolutely unknown.

What we also very greatly want to know is, how the change in the color of plumage is performed in males and females. As we have seen before in the descriptions of the species, there are amongst the red-tailed as well as amongst the black-tailed females specimens with different grades between red and black centres to the feathers on the lower surface, but we are absolutely unable to tell the reason for this inconstancy. Is it based upon a difference in age? And if so, which of them are the younger, the red-centred or the black-centred birds?

Have there never young males been mistaken for adult females? And cannot the difference in color of the females as described in our literature, partly be caused by such mistakes? It is certainly worth calling the attention of Directors of zoological gardens and private breeders to these questions, which for a great deal can only be satisfactorily dissolved by breeding and interbreeding the different species and making careful observations upon the products during the different phases from the chick to the adult bird.

It is out of doubt that our present collections are quite insufficient for a solution of these questions, which cannot be studied upon specimens with nothing but »India", »Sumatra", or even »Java" or »China" noted on the label. What we want are a great number of well-sexed males and females of different stages of age and from different trustworthy localities, and the breeding of and making careful observations upon hybrids between the different species, especially between *L. Vieilloti* and *L. nobilis*, *L. Vieilloti* and *L. sumatrana*, and between *L. sumatrana* and *L. nobilis*.

Leyden Museum, December 1895.